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THIS Q5

~~Patent Claims~~

1. An electric motor having a stator and a rotor, with the rotor having at least one permanent magnet and one rotor shaft and with the stator having at least two coils which produce a rotating magnetic field, when alternating currents flow through them, by which **the** rotor can be driven, and the rotor shaft is mounted radially and axially, **wherein** the rotor (4) is mounted by means of at least one elastic thrust ring (1a, 1b), with one thrust ring (1a) being arranged axially on one side of the rotor (4).

2. The electric motor as claimed in claim 1, **wherein** a second thrust ring (1b) is arranged on the other side of the rotor (4), and, depending on its position, the rotor (4) either loads the first or second elastic thrust ring (1a, 1b) continuously, or loads the first and second thrust ring (1a, 1b) alternately.

3. The electric motor as claimed in one of the preceding claims, **wherein** the thrust rings (1, 1a, 1b) are composed of a rubber-like plastic matrix (2) to one side of which microfibers (3, 3a, 3b) are applied. An electric motor as claimed in one of the preceding claims, wherein the lubricant in the thrust rings (1, 1a, 1b) has low viscosity.

4. The electric motor as claimed in claim 3, **wherein** the side with the microfibers (3, 3a, 3b) in each case faces the rotor (4).

5. The electric motor as claimed in claim 3 or 4, **wherein** the microfibers (3, 3a, 3b) are distributed stochastically.

6. The electric motor as claimed in one of the preceding claims, wherein the lubricant is provided in the thrust rings (1, 1a, 1b).

7. The electric motor as claimed in claim 6, **wherein** the lubricant in the thrust rings (1, 1a, 1b) has low viscosity.

8. The electric motor as claimed in one of the preceding claims, wherein at least one thrust ring (1a) is arranged in a recess (14) in the stator, which recess (14) is designed to accommodate the bearing disk (1a).

9. The electric motor as claimed in one of the preceding claims, wherein the rotor (4) has at least one indentation (8) in order to accommodate the second thrust ring (1b).

10. The electric motor as claimed in claim 8 or 9, **wherein** the recesses (14) and indentations (8) in the stator and in the rotor (4), respectively, are in the form of truncated cones.

11. The electric motor as claimed in one of the preceding claims, **wherein** the stator (12, 13) has an axial stop (20), by means of which it is possible to limit the axial movement of the rotor shaft (7) when additional components are being mounted on the rotor shaft (7).

12. The electric motor as claimed in one of the preceding claims, **wherein** a capillary gap (19) for holding lubricant is provided between the rotor (4) and the stator (12, 13).

13. The electric motor as claimed in one of the preceding claims, **wherein** the rotor shaft (7) is polished in the radial bearing region (10, 11).

14. The electric motor as claimed in one of the preceding claims, wherein the rotor (4) has a permanent magnet (5) embedded in a magnet mounting (6).

15. The electric motor as claimed in claims 1 to 13, **wherein** said electric motor has a rotationally symmetrical magnet which is rigidly connected to the rotor shaft (7).

16. The electric motor as claimed in one of the preceding claims, wherein the stator is in the form of a winding body (12, 13).

17. The electric motor as claimed in claim 16, **wherein** at least two crossing coils are fit on the winding body.

18. The electric motor as claimed in one of the preceding claims, **wherein** the alternating currents in the individual coils have a phase separation which corresponds to the angle of the individual coils to one another.

19. The electric motor as claimed in claim 18, **wherein** the alternating currents are sinusoidal.

20. The electric motor as claimed in one of the preceding claims, **wherein** a fan impeller (9) is mounted on the rotor shaft.

21. The electric motor as claimed in claim 20, **wherein** the fan impeller (9) is pressed onto the rotor shaft (7).

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